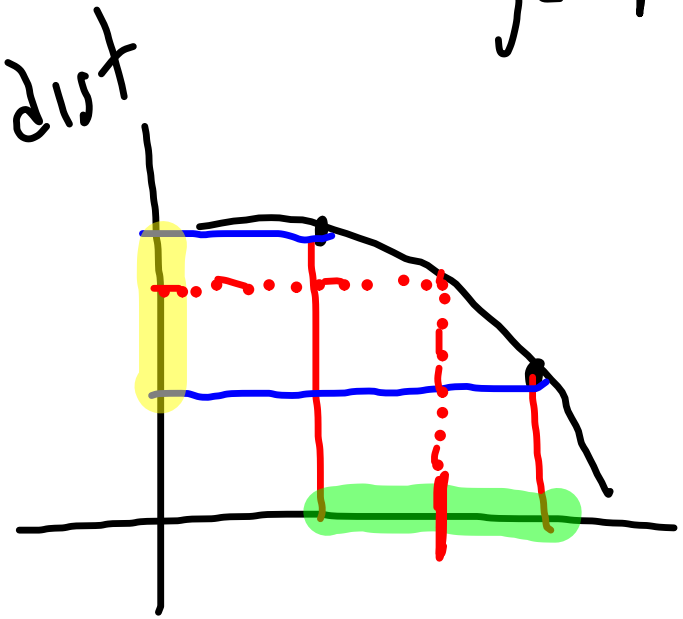
2.4 difference quotients $\frac{\Delta y}{\Delta x}$

average rates of change

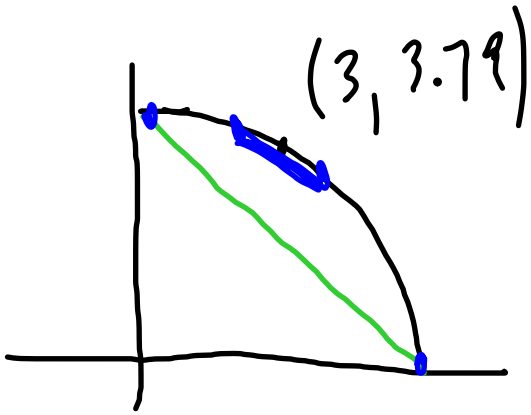


curve - acceleration

↓

change in velocity

Gavin's run



How fast was Gavin walking?

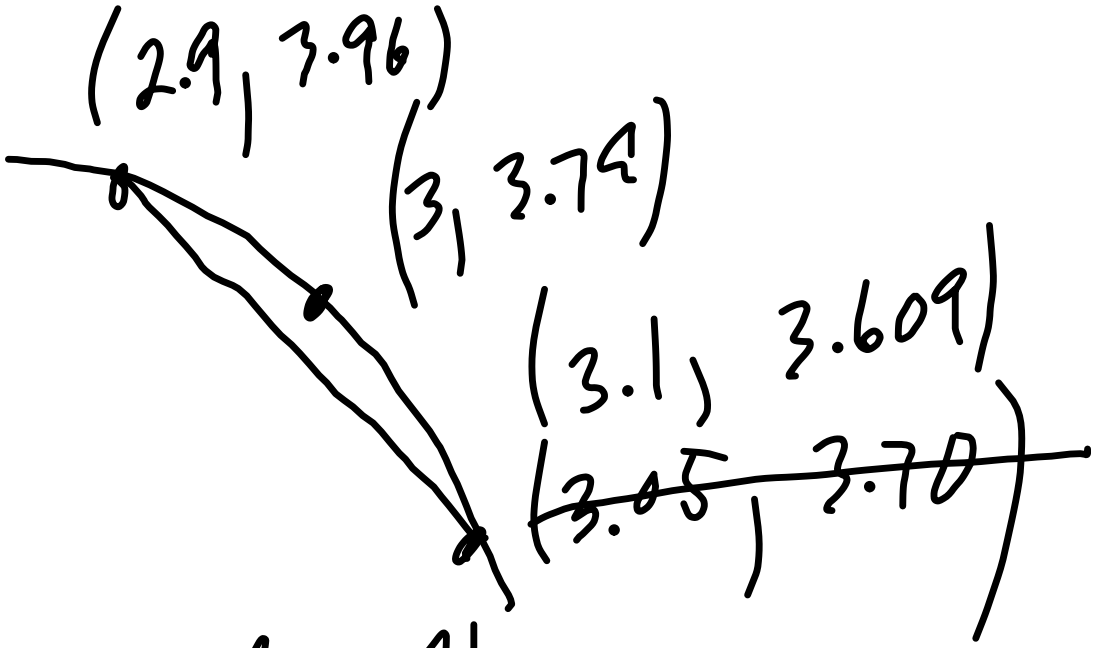
depends on: what point in time

How fast at $t=3$ (estimate)

ave vel $= \frac{\text{total distance}}{\text{total time}}$

symmetric diff. quot. left pt — right pt

good estimate: left pt, right pt should be close to middle pt

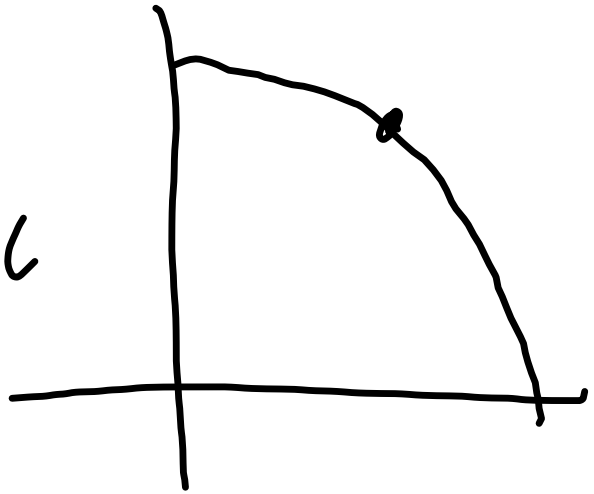


SDQ: $\dfrac{3.609 - 3.96}{3.1 - 2.9} = -1.76 \dfrac{m}{s}$

↑ ave velocity ≈ inst. vel

$y = 100 - 4.5t^2$

How fast at 1 sec



$t = 1$

plug in $t = .9$ $t = 1.1$